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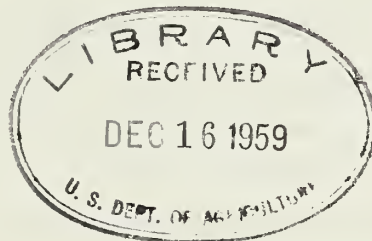
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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Marketing Service  
Dairy Division  
Washington, D. C.

RECOMMENDED MINIMUM PRODUCTION REQUIREMENTS  
FOR MILK TO BE USED FOR THE MANUFACTURE OF DAIRY PRODUCTS



Agriculture--Washington



PREFACE  
963958

Milk is a highly nutritious food, extensively used, and essential to the human diet. To preserve its special characteristics, producers and processors should handle it with extreme care. This is necessary so that the products made from the milk will be palatable and wholesome.

Minimum production requirements for manufacturing milk are in force only in a few states and even these are somewhat lacking in uniformity. Many manufacturers of dairy products and regulatory officials have expressed the opinion that adequate minimum standards for manufacturing milk, for use on a nation-wide basis, are essential and should be established.

These "Recommended Minimum Production Requirements for Manufacturing Milk" are offered as the first step toward establishing such uniform standards. They are designed to improve the care and sanitary practices in milk production and assure a supply of manufacturing milk of consistently good quality by providing producers with standards for improving their facilities and production methods.

Both the Recommended Minimum Production Requirements for Manufacturing Milk and the companion Minimum Specifications for Dairy Plant Operations are proposed for use by regulatory agencies and industry groups in the producing states. They are intended to:

- (1) encourage the production of good quality milk;
- (2) promote efficient and sanitary processing;
- (3) assure stable high quality dairy products;
- and (4) increase the appeal of these products and



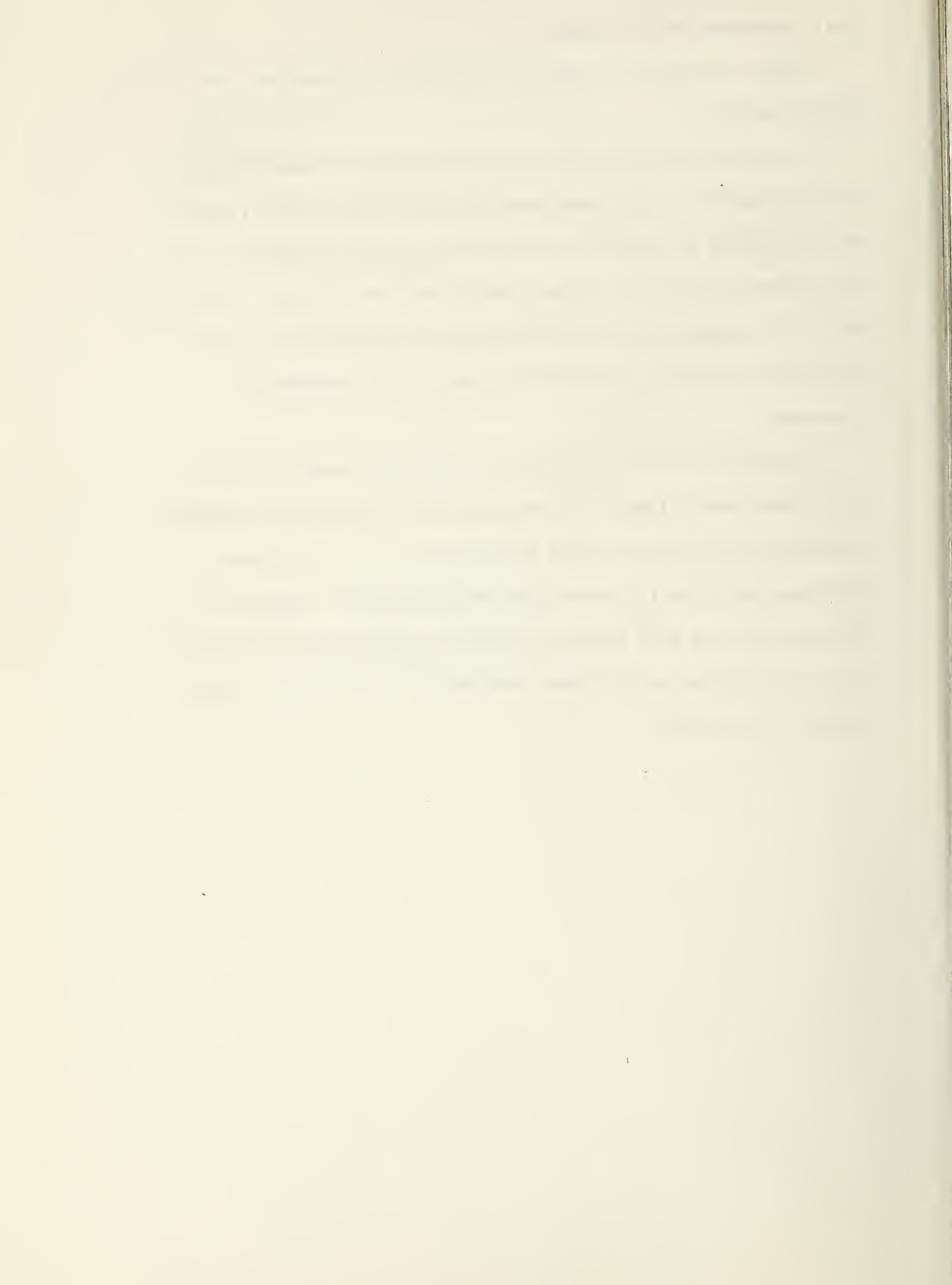


their acceptance by consumers.

These recommended standards, it should be emphasized, are MINIMUM standards.

The few states which have stricter bacterial standards for manufacturing milk would undoubtedly retain them, however, these states may wish to consider adopting the companion standards for dairy plant operations. States that do not have adequate standards or any standards for manufacturing milk or for dairy plant operations might well consider adoption of the recommended standards.

The Dairy Division, Agricultural Marketing Service, United States Department of Agriculture gratefully acknowledges valuable assistance and guidance in the formulation of these standards, from numerous industry technicians representing all segments of the manufacturing milk industry, several technicians representing State universities and colleges, and representatives from other Government agencies.



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURE MARKETING SERVICE  
DAIRY DIVISION  
WASHINGTON 25, D. C.

April 24, 1959

UNITED STATES DEPARTMENT OF AGRICULTURE  
RECOMMENDED MINIMUM PRODUCTION REQUIRE-  
MENTS FOR MILK TO BE USED FOR THE MANUFACTURE  
OF DAIRY PRODUCTS

DEFINITIONS

58.301 Dairy farm.--"Dairy farm" means a place or premises where one or more milking cows are kept, a part or all of the milk being delivered, sold, or offered for sale to a licensed dairy plant manufacturing dairy products.

58.302 Fieldman.--"Fieldman" means a person who is qualified and trained in the sanitary methods of production and handling of milk, and is generally employed by a processing or manufacturing plant for the purpose of dairy farm inspection and quality control work.

58.303 Inspector.--"Inspector" means an employee of the responsible regulatory agency, who is qualified and trained and authorized to perform dairy farm inspections, plant inspections, and the grading of raw milk.

58.304 Milk.--"Milk" to be used for manufacturing means the normal lacteal secretion, practically free from colostrum, obtained by the complete milking of one or more healthy cows located in a modified accredited area or from cows in herds fully accredited as tuberculosis-free by the United States Department of Agriculture.

The first part of the book is devoted to a discussion of the philosophy of language. It begins with a chapter on the philosophy of language, and then goes on to discuss the philosophy of language in more detail. The second part of the book is devoted to a discussion of the philosophy of language. It begins with a chapter on the philosophy of language, and then goes on to discuss the philosophy of language in more detail.

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58.305 Milk grader.--"Milk grader" means a person employed by the processing or manufacturing plant, who is qualified and trained, for the purpose of grading raw milk in accordance with the quality provisions contained herein.

58.306 Minimum Production requirements.--"Minimum production requirements" means the provisions as outlined in Sections 58.320 through 58.335 which includes (a) health of the cows, (b) conditions and sanitation of the utensils and equipment, and (c) quality specifications of raw milk.

58.307 Patron or producer.--"Patron" or "producer" means the person (or persons) who exercises control over the milk delivered to a processing plant or receiving station and who receives payment for this product. A new patron is one who has only recently entered into the production of milk.

58.308 Producer's permit.--"Producer's permit" means a written annual certification by the responsible regulatory agency that the milk producer has complied with the minimum production requirements herein provided, as evidenced by a satisfactory dairy farm sanitation inspection report filed by the official dairy inspector or fieldman.

58.309 Regulatory agency.--"Regulatory agency" means the agency or department that has authorized jurisdiction over the production and handling of milk to be used for manufacturing.

58.310 3-A Sanitary Standards.--"3-A Sanitary Standards", means



the standards for dairy equipment formulated by the 3-A Sanitary Standards Committees representing the International Association of Milk and Food Sanitarians, the United States Public Health Service, and the Dairy Industry Committee.

#### I--MINIMUM PRODUCTION REQUIREMENTS

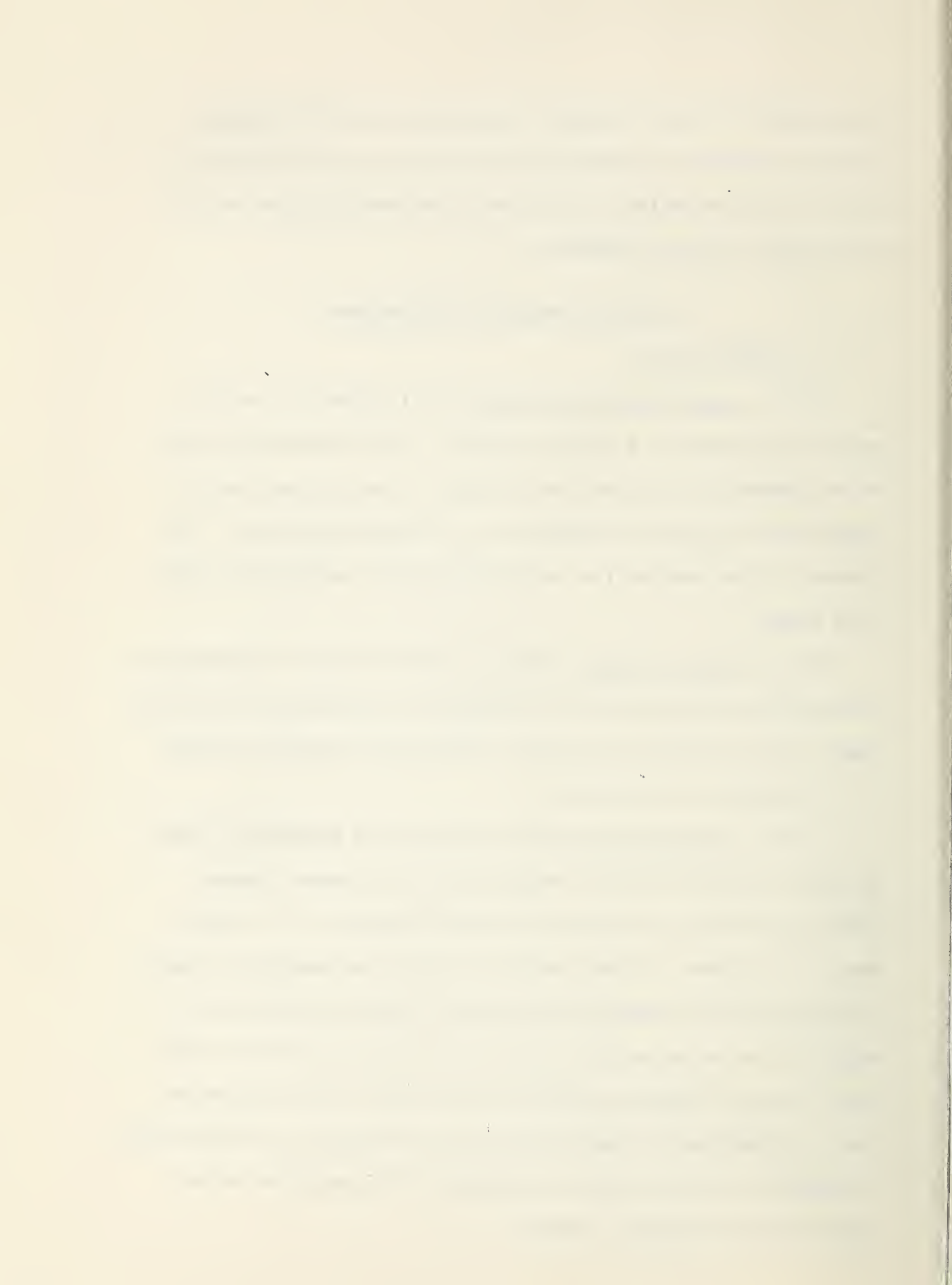
##### A. Health of cows

58.320 General health of the herd.--All animals in the herd shall be maintained in a healthy condition. When observations made by the inspector of fieldman show evidence to the contrary he may require that the herd be examined by a licensed veterinarian. The findings of the veterinarian shall determine the appropriate action to be taken.

58.321 Tuberculin test.--The herd shall be free of tuberculosis as provided under the modified accredited area system approved by the Animal Disease Eradication Division, Agricultural Research Service, U. S. Department of Agriculture.

58.322 Brucellosis test.--The herd shall be brucellosis tested and under an approved plan of eradication of the Animal Disease Eradication Division, Agricultural Research Service, U. S. Department of Agriculture. Within three years after the adoption of these minimum production requirements all milk offered for sale for the manufacture of dairy products shall be from herds certified by the State Livestock Sanitary Authority as following a plan approved by the U. S. Department of Agriculture for the eradication of brucellosis. All additions shall be made in compliance with regulations of the State Livestock Sanitary Authority.







58.323 Mastitis.--Abnormal milk from suspicious or diseased quarters shall be discarded. When cows are treated for mastitis by infusion of the udder, the milk from the treated quarter(s) shall be excluded from the supply for at least 72 hours after the last treatment.

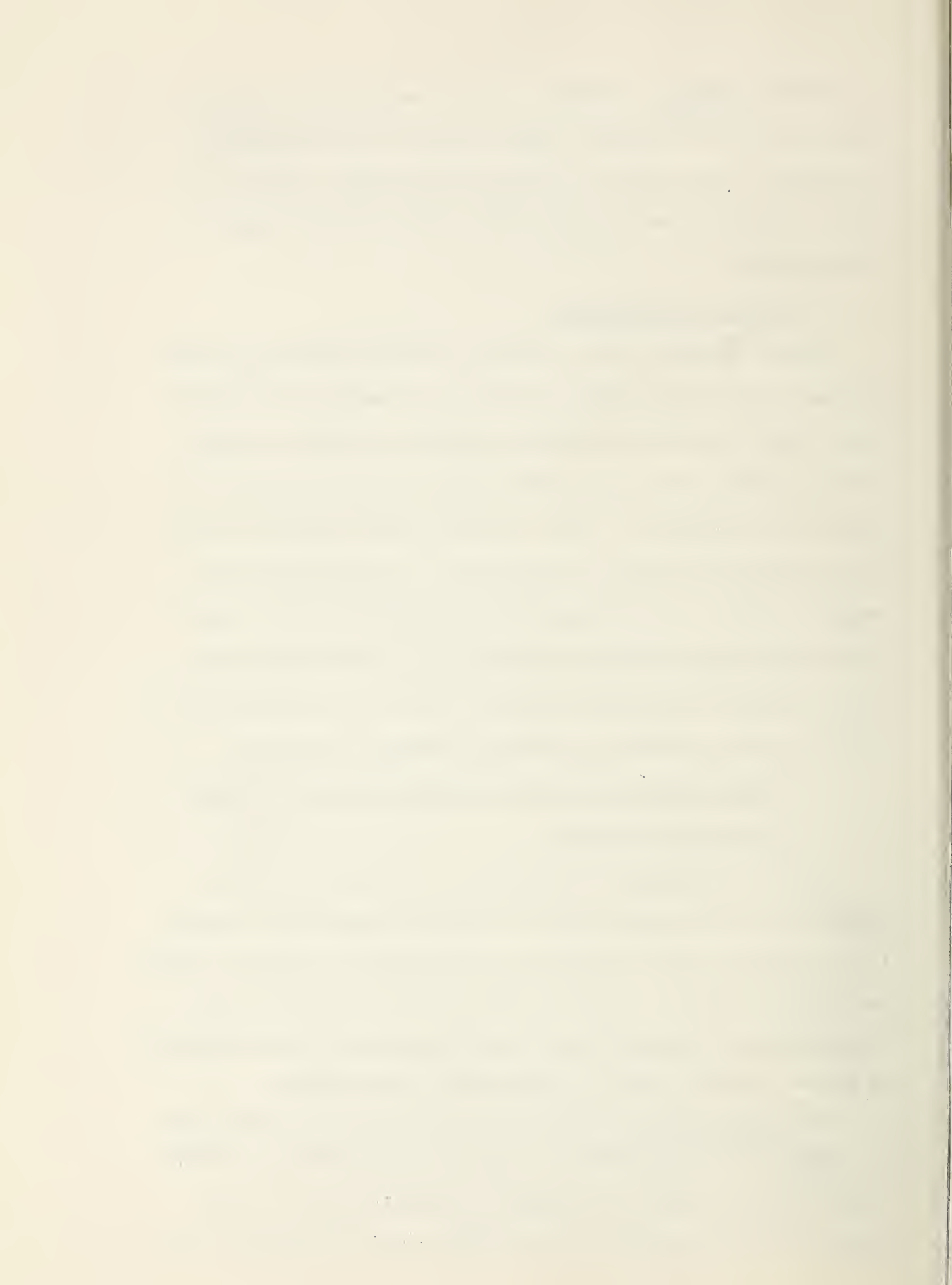
B. Utensils and equipment

58.328 Utensils, cans, bulk tanks, milking machines and other equipment used in the handling, storage, or transfer of milk shall comply with 3-A Sanitary Standards, wherever applicable, be maintained in good condition, free from rust, open seams, and shall be kept clean and sanitary. Clean, suitable storage facilities shall be provided for all utensils and equipment. Utensils and other equipment used in the handling of milk shall be washed after each milking and sanitized immediately prior to use. Bulk farm tanks shall be located only in the milkhouse or milk room in such a way as to be easily accessible for adequate cleaning and service.

C. Quality Specifications and rejection levels for raw milk at the receiving plant

58.335 (a) General.--The inspection of raw milk for manufacture into dairy products shall be based on organoleptic examination (sight and smell) and quality control tests for sediment content and bacterial estimate. All raw milk at receiving point or milk delivered to the receiving station or dairy plant shall be identified as to the producer, seller or shipper from whom received.

(b) Sight and odor.--Each can or farm bulk tank of milk shall be examined by a milk grader for physical characteristics, and off-odors. The milk shall be wholesome and characteristic of normal milk. The flavor and odor of the raw milk shall be fresh and sweet,



free from objectionable feed flavors and practically free from off-flavors or off-odors. Any raw milk that shows an abnormal condition (including, but not limited to, curdled, ropy, bloody, mastitic or which contains toxic substances, antibiotics or other contaminants) or which shows significant bacterial deterioration, as indicated by sight or smell, shall be rejected to the producer, seller or shipper and shall not be used in the processing or manufacturing of dairy products.

(c) Sediment content classification.--For the purpose of quality control and establishing a rejection level of the milk to the producer the following classifications of the milk for sediment shall be applicable:

Sediment (off-the-bottom method):

No. 1 - USDA Sediment Standard (not to exceed) 0.50 mg.

No. 2 - USDA Sediment Standard (not to exceed) 1.00 mg.

No. 3 - USDA Sediment Standard (not to exceed) 2.50 mg.  
(Probational - not over 10 days)

No. 4 - USDA Sediment Standard (over) 2.50 mg.  
(Reject)

At least twice each month, at irregular intervals, one can of milk from each producer shall be selected at random and tested for sediment content by the "off-the-bottom" method of sediment testing as set forth in the latest edition of "Standard Methods for the Examination of Dairy Products" published by the American Public Health Association, 1790 Broadway, New York, New York. The sediment discs taken shall be classified in accordance with the applicable discs of the U. S. Sediment Standards for Milk and Milk Products. A reprint



of these applicable sediment discs is shown below:

If the sediment disc on the can of milk selected at random is classified No. 3 (2.50 mg.) or more, as determined on the basis of the United States Sediment Standards for Milk and Milk Products, all cans in the shipment shall be tested for sediment content and the milk which shows sediment content in excess of 2.50 mg. shall be rejected to the producer. All producers delivering milk with sediment No. 3 or No. 4 shall be notified of the quality of their milk and furnished the applicable sediment disc. All cans of the next shipment shall be tested for sediment and if classified as No. 1 or 2, the milk is in full compliance with respect to sediment. If one or more cans on this retest are found containing sediment of No. 3 or in excess of No. 3, all cans of milk are to be retested on the following shipment. This procedure of retesting daily all cans may be continued over a time period not exceeding ten days. If at the end of ten days or six consecutive retests the producer has been unable to meet the minimum requirements (No. 2 or better) no more milk shall be received from this producer. (See 58.346 for procedure to obtain reinstatement).





In the case of milk held in bulk farm tanks a representative sample shall be taken in accordance with procedure described in "Standard Methods" for bulk sediment testing, which will yeild results comparable to the "off-the-bottom" method of sediment testing for individual cans, and properly classified in accordance with the aforementioned United Stated Sediment Standards for Milk and Milk Products.

(d) Bacterial estimate classification.--For the purpose of quality control and establishing a rejection level of the milk to the producer, the following classification of the milk for bacterial estimate shall be applicable:

Bacterial Estimate Classification	Direct Microscopic Clump Count or Standard Plate Count Not Over	Methylene Blue Test Decolorized in Not Less Than	Resazurin Reduction Time to Munsell Color Standard P 7/4 Not Less Than
No. 1	500,000 per ml.	4½ hours	2½ hours
No. 2	3,000,000 per ml.	2½ hours	1½ hours
No. 3	10,000,000 per ml.	1 hour	¾ hour
No. 4 (Probational not over 4 weeks)	over 10,000,000 per ml.	less than 1 hour	less than ¾ hour

At least twice each month a bacterial estimate shall be made on a mixed sample of each producer's milk by the direct microscopic clump count, standard plate count, methylene blue test, or resazurin





test as set forth in the latest edition of "Standard Method for the Examination of Dairy Products," published by the American Public Health Association, 1790 Broadway, New York, New York.

If any of the milk delivered by any producer shows a bacterial estimate of No. 4 (over 10,000,000 per ml.) the operator of the dairy plant shall notify the producer immediately. The milk from such producer shall be tested at least weekly, until the causes have been corrected and the bacterial counts again comply with No. 3 or better. If at the end of four weeks the producer has been unable to meet the minimum requirements (No. 3 or better) no further shipments of milk shall be accepted from this producer. (See 58.346 for procedure to obtain reinstatement).

(e) Acceptable milk.--Acceptable milk is milk that qualifies under Section 58.335, paragraph (b) sight and odor, and that is classified as No. 2 or better for sediment content and No. 3 or better for bacterial estimate. Milk classified as No. 3 for bacterial estimate shall require action on the part of the producer for improvement.

(f) Probational milk.--(1) Sediment--Milk classified as No. 3 for sediment shall be considered as "Probational Milk" and the period of time in which such milk may be accepted shall not exceed 10 days. (2) Bacterial estimate--Milk classified as No. 4 for bacterial estimate shall be considered as "Probational Milk" and the period of time in which such milk may be accepted shall not exceed 4 weeks.

(g) Reject milk.--Milk which fails to meet the requirements



of paragraph (b) of this section for organoleptic examination or classified as No. 4 for sediment content or after four weeks, No. 4, for bacterial estimate, shall be considered reject milk. All such milk shall be identified by a reject tag or by the addition of a harmless food coloring, depending upon the applicable regulations of the responsible regulatory agency. Only milk graders, fieldmen or state dairy inspectors are authorized to reject milk and identify such milk with a reject tag or by the addition of harmless food coloring.

(h) Quality testing of milk from new producers.--A sediment test shall be made on the first shipment of milk received from a new patron and the milk shall not be accepted unless it qualifies as No. 3 or better. Also the initial shipment of milk shall be tested for bacterial estimate. Retesting if needed shall be initiated to conform to the requirements for regular producers.

(i) Record of tests.--Accurate plant records, listing the results of quality tests made on raw milk, shall be maintained on each producer's milk. Each producer shipping probational or reject milk shall be informed immediately of the results of such quality tests. Such records shall be available for examination by the inspector and kept on file for at least 12 months.

## II--PROGRAM OPERATION

58.345 Farm inspections.--The authorized dairy inspector of the responsible regulatory agency assigned to the area or fieldman shall inspect the dairy farm of each producer to determine compliance with

The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a full understanding of the present. The author then proceeds to discuss the various factors which have shaped the development of the United States, including the influence of the British, the Spanish, and the French. The paper concludes by emphasizing the need for a more comprehensive study of the history of the United States.

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the minimum production requirements (Sections 58.320 through 58.335). A copy of the dairy farm sanitation and inspection report, dated and signed, shall be given to the producer for his guidance. When necessary, assistance shall be offered the producer for improving milk quality. A copy of the report also shall be furnished the operator of the receiving dairy plant and kept on file for at least 24 months.

When the fieldman or inspector certifies that the milk producer has complied with the minimum production requirements, the responsible regulatory agency affirms approval by the issuance of a permit to sell milk in a market for manufacturing purposes. A limited permit may be issued to those producers who have not attained full compliance with the minimum production requirements, provided the producer shows willingness to correct existing deficiencies.

When the dairy farm is found to be in noncompliance with the minimum production requirements as herein provided, a reinspection shall be made by the fieldman or inspector within 30 days after the initial inspection. If not in compliance another reinspection shall be made within 30 days to determine status of compliance. If the dairy farm is in noncompliance at the end of the 60 day period the producer's permit shall be suspended and recalled by the regulatory agency.

A dairy farm inspection shall be made by the dairy inspector of the responsible regulatory agency or fieldman at least once every 12 months to determine continuing compliance.

58.346 Producer reinstatement.--When the producer has made the necessary corrections at the dairy farm he may apply to the fieldman





or dairy inspector of the responsible regulatory agency for reinspection and reinstatement of permit. If the suspension was based on inspections of the regulatory agency inspector then only such agency inspector may authorize reinstatement of permit.

58.347 Field service.--An authorized fieldman shall visit promptly, and preferably within 3 days, each producer involved in the production of probational or reject milk, for the purpose of inspecting the equipment, utensils, facilities and sanitary practices at the farm and to offer constructive assistance for improvement in the quality of the milk. A copy of the fieldman's inspection report shall be furnished the producer and a copy filed at the dairy plant.

If the producer is unable or unwilling to comply with the minimum production requirements, after assistance by inspector or fieldman, the receiving plant shall immediately discontinue buying the milk and notify, in writing, the responsible regulatory agency.

58.348 Exclusion of milk from the market.--Every operator of a licensed dairy plant shall refuse to purchase milk from any producer on the basis of the following:

(a) When the milk has been in a Probationary (No. 3) status for sediment content for 10 days or six consecutive deliveries, or No. 4 for bacterial estimate, for more than four weeks, or

(b) When any producer is unable or unwilling to correct conditions on the farm to comply with the minimum production requirements; except, that when corrections require some capital investment, a reasonable time may be granted to complete such improvements, or

(c) When any producer refuses to permit the inspection of his





production facilities.

58.349 Transfer of records.--When a producer for any reason changes delivery of milk from one plant to another he may do so provided he has a valid permit and the plant records show compliance with minimum production requirements or in case the receiving plant, for reasons other than noncompliance, is unable or unwilling to accept milk from a producer.

The producer shall furnish the new receiver with a copy of the most recent record of farm inspections and milk quality tests records for the past three months supplied by the previous receiver. If the previous receiver is unwilling or unable to supply the necessary producer records, the new receiver may accept the milk, based on established testing procedures, and report such failure or refusal to the responsible regulatory agency.

58.350 Milk graders.--Each plant shall provide one or more milk graders who shall inspect each can of milk for odor and physical appearance in accordance with paragraph (b) of Section 58.335.

58.351 Milk graders-bulk milk haulers.--Tank truck operators who transport milk from producer bulk tanks to the dairy plant, when qualified as milk graders shall inspect each farm tank of milk for odor and physical appearance in accordance with paragraph (b) of Section 58.335. He also shall be trained for taking samples as required for laboratory classification.

58.352 Supervision of program.--The responsible regulatory agency shall have responsibility for supervision of the program and the dairy inspector assigned shall:



(a) Check the farm inspection records and quality tests of the milk for individual producers at each dairy plant at periodic intervals.

(b) Check the grading of the milk to determine that the milk is being graded in accordance with the established procedures.

(c) Review the fieldmen's work to determine that they are making proper dairy farm inspections and reports, and compare the results of such inspections with the plant records.

(d) Assist plant management, laboratory and field staffs, with producer educational programs relating to quality improvement of milk.

58.353 USDA survey.--The Inspection and Grading Branch, Dairy Division, Agricultural Marketing Service, United States Department of Agriculture, in conjunction with its responsibility for providing dairy products grading and quality control service, will on a continuing basis, review the effectiveness of the program operation within each state adopting these production requirements. This will be accomplished by (a) checking the quality of the finished dairy products produced in a state and (b) through cooperation with the responsible regulatory agency, make spot checks of work performance of milk graders, laboratory and field staffs.

#### APPENDIX

Good quality milk is essential and fundamental to the manufacture of high quality dairy products. What is good quality milk? Simply, fresh, clean, sweet milk. The following suggestions are intended to aid and guide the producer in producing good quality milk. These



suggestions are not a part of the minimum production requirements.

General.--Proper sanitary practices are essential in the production of good quality milk, possessing a satisfactory flavor and containing a relatively low bacterial count and sediment content. The essential factors in the production of such milk are clean, healthy cows, clean utensils, effective bactericidal treatment of utensils, prompt cooling of milk to a temperature sufficiently low to retard bacterial growth, and adequate facilities to protect milk during transportation. The producer should take all necessary precautions consistent with the production of a highly perishable food.

A. Housing

Milking barn.--A conventional milking barn, milking parlor or other milking facility should be provided. It is important that the size and arrangement be adequate to prevent overcrowding, promote good health of the cows and permit normal milking operations without impairing the quality of the milk. Swine, fowl or other animals should not be housed or permitted in any part of the milking quarters.

1. Lighting.--The milking quarters should be provided with adequate natural or artificial light, properly distributed throughout, for day or night milking.

2. Ventilation.--To assure the production of clean and wholesome milk and protect the health of the animals the milking quarters should be ventilated to permit rapid drying of the floors and to prevent dusty air, objectionable odors or condensation.

3. Floors and gutters.--The floors and gutters of that portion of the milking barn in which cows are milked should be





constructed of concrete or other impervious, easily cleaned material. Floors and gutters should be graded for proper drainage and kept clean and in good repair. When conditions warrant, adequate and suitable bedding should be used and replaced as necessary. Such bedding should be clean, dry and absorbent. Use of ground limestone or other absorbents on floors and gutters is suggested to keep them dry and reduce odors.

4. Walls and ceilings.--The interior walls and ceilings of the milking barn or stable should be whitewashed or painted as often as may be necessary, and should be kept clean and in good repair. Every dairy barn having an overhead storage space should be provided with a dust-tight ceiling. If feed is ground or mixed, or stored in a feed room adjoining the milking area, such room should be separated therefrom by a dust-tight partition and door, however, feed may be stored in the milking portion of the barn, in covered, dust-tight containers. Tight-fitting doors should separate the milking area from the silo entry.

5. Cowyard and loafing shed.--The cowyard should be graded and drained away from the barn, and so kept that there are no standing pools of water or organic waste. Loafing sheds or covered yards, if used, should be provided with sufficient bedding to maintain a reasonably clean dry surface.

6. Manure disposal.--Organic wastes should be removed, and stored or disposed of in such a manner that will control the breeding of flies, and prevent the access of cows to manure piles. In the case of loafing sheds or pen-type stables, clean bedding should be





added at frequent intervals to keep such areas clean and dry.

7. Insect and fly control.--Adequate measures should be taken to control the presence of flies and other insects. Only insecticides approved by the regulatory agency may be used in and around the buildings of the milking area as required. Such insecticides should not be used immediately prior to or during the milking operation.

8. Rodent control.--Precautionary measures should be taken to prevent the harborage of rodents. Only rodenticides approved by the regulatory agency should be used. They should be handled with the greatest of care and should not be stored or used in the milk-house or near milking equipment.

B. Feeds

Feeding.--Feed eaten by the cows may affect the flavor of the milk, therefore, silage and other strong feeds that cause off-flavors in milk should be fed after milking. Also, to avoid excessive dust in the air, hay should be fed after milking. Weed infestation in pastures should be kept to a minimum by proper management. To prevent or minimize off-flavors in the milk cows should be removed from weed infested pastures several hours before milking. Only herbicides approved by the regulatory agency should be used for control of weeds in pastures.

C. Milking

General milking practices. (a) Strip-cup.--At each milking a strip cup should be used to check the milk from each quarter. This practice is a good check for detecting mastitis and aids in reducing



bacterial counts. When diseased quarters are detected, such cows should be milked last to avoid contamination of the milking equipment and prevent spread of the infection to healthy cows. Milk from infected quarters should be excluded from the regular milk supply.

(b) Udders, teats and flanks.--The flanks, udders, and tails of all milking cows should be clipped frequently as an aid to keeping the cows clean. All brushing should be completed before milking commences. Immediately before milking, the udders and teats should be washed with clean warm water to minimize contamination of the milk. A fresh clean cloth or suitable paper towel should be used to dry the udders and teats. As an alternate method the udders and teats may be cleaned by using a clean towel moistened with a suitable sanitizing solution.

(c) Milkers' hands.--The milker should be in general, good health, and his hands should be washed clean and dried with a clean towel immediately before milking and following any interruption in the milking operation. Production of clean milk demands the exclusion of wet-hand milking. Convenient facilities, including running water, soap and clean towels, should be provided for the washing of the milkers' hands. No person with infected cut or lesion on hands or arms should milk cows, handle milk or milk utensils.

(d) Milkers' clothing.--Milkers and milk handlers should wear clean outer garments while milking or handling milk, containers or utensils.

(e) Milk stools.--Milk stools, if used, should be constructed to permit easy cleaning and kept clean.



(f) Milking machines.--Milking machines should be properly constructed to permit easily cleaning. They should be kept in good repair and operating order. When rubber parts become hard, cracked or otherwise unsatisfactory they should be replaced. To reduce the possibility of sediment in milk the teat cups should be kept well off the floor while attaching or removing the milker.

(g) Pails and strainers.--All milk pails, including milking machine pails, should be kept in good repair and used only for handling milk. Seamless pails are recommended. Strainers, when used, should be so constructed as to utilize single service strainer pads only.

(h) Cans.--Producer cans should be of such construction (preferably seamless) as to be easily cleaned and kept in good repair. They should be free from open seams, cracks, and substantially free from rust condition or milkstone. It is recommended that all milk cans have an umbrella type cover.

(i) Removal of milk.--Milk should be transferred from the milk pail or milking machine into clean milk cans or bulk farm tank. The cans should be placed at such distance and location from the cows so as to be protected against extraneous matter. Milk should be taken to the milk house immediately after milking or preferably after each can has been filled. Straining of the milk, when practiced, should be done in the milk house or in a protected place to prevent contamination.

(j) Cooling.--Cooling of the milk should take place immediately after milking, unless the milk is delivered to a dairy plant within 2 hours. Cooling retards the development of bacteria and increases the





keeping properties of milk but cooling should not be relied on as a substitute for sanitary practices. Facilities should be available and in proper working order and of such capacity that the milk will be cooled to 50° F. or less within two hours after milking and should be maintained at that temperature until delivered.

(k) Pipeline milking systems (l) Installation.--Pipeline milking systems, when used, should be installed to assure proper operation and adequate cleaning. All milk contact surfaces should meet applicable 3-A Sanitary Standards for material and construction and the lines installed with proper slope for adequate self-drainage. The piping should be supported so that the entire line remains in alignment and position. Care should be taken to eliminate risers or other conditions which may adversely affect the quality of the milk. Primary lines should be so installed that any change in the elevation of the milk flow will be downward.

The vacuum line leading from the milk receiver should be constructed of stainless steel or other equally impervious material meeting 3-A Sanitary Standards and should be self-draining to the moisture trap.

Milk cocks in the line when not in use should be protected by a sanitary cover.

Systems not intended for in-place cleaning should be readily demountable. The unit or sections should be no longer than the washing facilities will accommodate.

Systems intended for in-place cleaning should be engineered for the purpose and should be provided with a sanitary circulating





system to assure adequate cleaning after each use. Solution lines should be of the same diameter as the milk lines and should be disconnected from the milk lines during the milking period. The milk lines should be installed in a manner that will permit inspection. A thermometer should be installed in the cleaning line for checking the temperature of cleaning solutions and should be maintained in good working order.

(2) Condition and operation.--Pipeline milking systems, or any other milking system, should be operated in a sanitary and satisfactory manner. Any parts or functions of the operation which become defective should be quickly replaced or repaired.

(3) Cleaning.--(i) Pipeline milking systems not designed for C-I-P cleaning by circulation should be completely dismantled after each milking and all pipes and parts thoroughly washed in the same manner as other utensils and equipment. All pipes and parts should be sanitized by circulation with a bactericidal solution circulated through the entire system immediately prior to use. Care should be taken that the solution is completely drained from all lines before starting milking.

(ii) Pipeline milking systems when cleaned-in-place require special attention. All parts including the C-I-P solution tank should be of stainless steel or other corrosion resistant material. Flexible connections, when used, should be capable of withstanding repeated cleaning and bactericidal treatment.

An adequate supply of potable hot and cold water is essential to provide all water needs at the necessary temperatures.



Immediately after milking is completed flush at least five gallons of warm water (110-115° F.) through the entire milk pipeline system, discharging this water to an open drain, until the water appears clear. Rinse and brush the outside surfaces of the milking units.

Immediately after the pre-rinse, circulate through the pipeline system a detergent solution made up of water and a completely dissolved, compatible, non-depositing pipeline cleaner. Follow the recommendations of the detergent and milking machine manufacturers as to the time, temperature and concentration of the solution. The amount of solution should be such that a reserve remains in the wash tank at all times during the cleaning operation. When necessary, an acid cleaner solution prepared according to the manufacturer's directions, may be used in the entire system.

Following the washing operation the milk pipeline system should be thoroughly rinsed and drained. All openings should be capped, or otherwise protected from contamination between milkings.

D. Milkhouse or milk room

(a) General.--A properly constructed and well equipped milkhouse aids in the production of good quality milk. With such facilities, the work of washing, sanitizing, and storing of utensils and equipment is made easier and more efficient.

(1) Construction (a) Size.--The milkhouse should be of sufficient size to accommodate all necessary tank capacity for cooling the milk properly. It should also provide adequate room for the cleaning, sanitizing and storage of equipment and utensils.



(b) Location.--The milkhouse, preferably a separate building, should be conveniently located on well drained ground. The milkhouse may be connected to the milking barn by a covered passageway enclosed on at least one side or a vestibule constructed between the barn and milkhouse. When the barn is used only for milking and the feeding of concentrates, and not for the housing of cattle, a direct opening to the milkhouse may be provided by a solid self-closing door. A milking parlor, properly arranged and maintained may also be used for cooling, handling and storing milk, for cleaning, bactericidal treatment and storing of equipment.

(c) Floors, walls and ceilings.--The milkhouse floors should be of concrete or other impervious material, kept in good repair, and sloped to the floor drain. Walls and ceilings should be of tight construction and painted a light color. They should be clean and kept in good repair.

(d) Lighting and ventilation.--Sufficient light should be provided to permit necessary operations day or night. Ventilation should be provided to eliminate odors and excessive moisture. A ventilater should not be located over a bulk tank.

(e) Doors and windows.--All doors should be self-closing and screen doors should swing outward. All windows which open should be properly screened. A separate port opening should be provided if farm bulk tank is used.

2. Equipment (a) Cooling tank or mechanical cooler.--A cooling tank with sufficient water capacity to adequately cool the milk or a mechanical milk cooler, should be provided. The cooling equipment







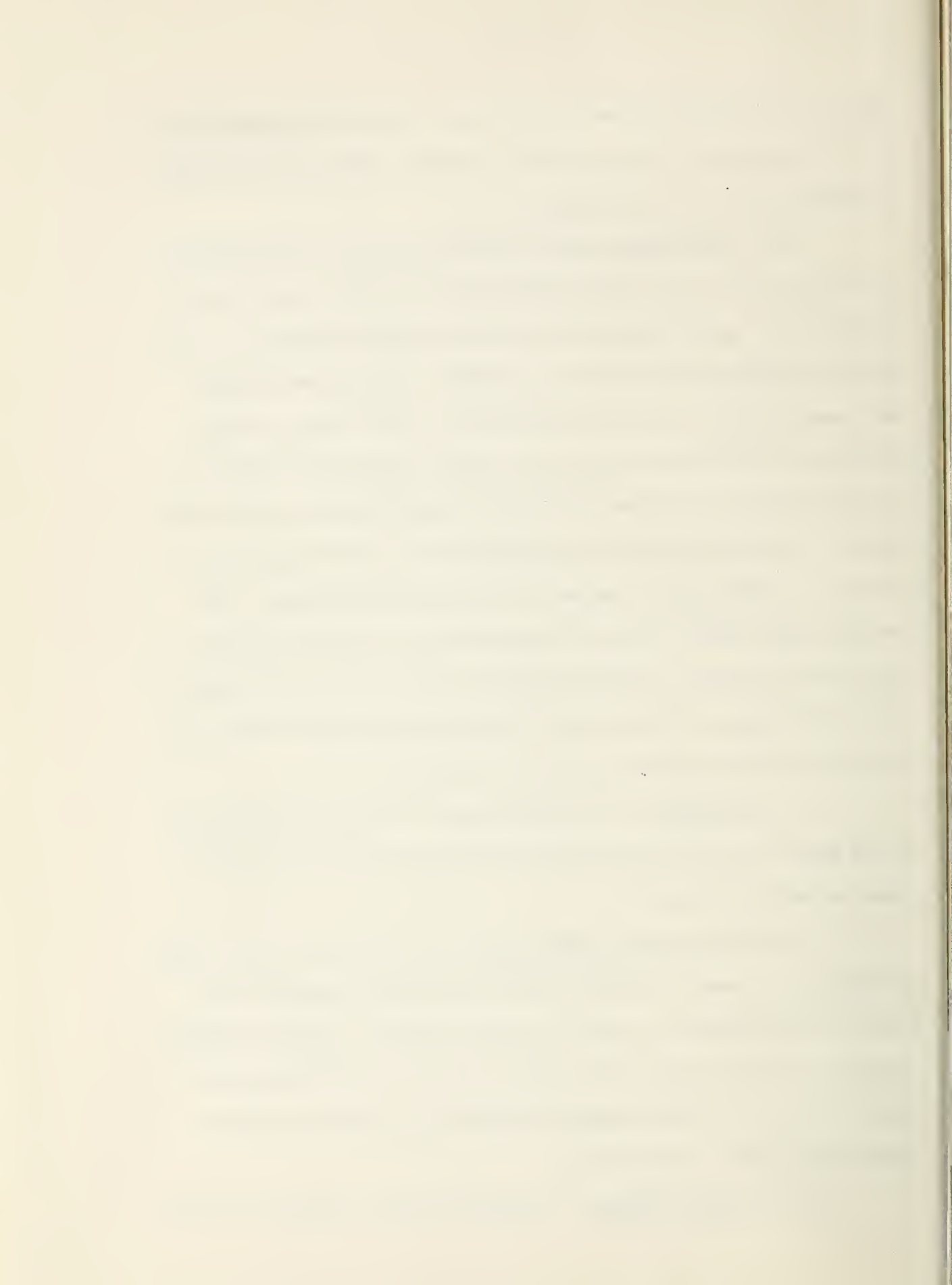
should be so constructed and operated as to maintain the temperature of the milk stored therein at 50° F. or less, within two hours after completion of each milking period.

(b) Bulk cooling.--All bulk tanks should be constructed in accordance with the 3-A Sanitary Standards in effect at the time of installation. All tanks should be located in the milkhouse in such a way as to be easily accessible for adequate cleaning and service. Bulk tanks should not be located directly over a floor drain. After emptying, the bulk tanks should be properly cleaned and should be given bactericidal treatment immediately before next use. The tanks should be maintained in good operating order to assure proper performance of thermometers, agitators and cooling mechanisms. The cooling should begin soon after the addition of the first milk to the tank and continue automatically thereafter, in accordance with the specifications for the tank. When adding warm milk to the cold milk make certain that the agitator is started.

(c) Wash tank.--A two-compartment wash tank should be provided which will drain out properly and large enough to accommodate cans and other equipment.

(d) Milk can and utensil racks.--Milk can and utensil racks constructed of metal or equally impervious material should be provided in the milkhouse or room for proper storage, adequate drainage and air drying of cans, milker pails, strainers and milking machine parts. The use of racks extends utensil and can life and affords protection against contamination.

(e) Storage cabinet.--A suitable cabinet should be provided



for the storage of single service cotton filter pads, udder towels, spare milking machine parts, cleansers, and other supplies.

(f) Brushes.--Suitable scrubbing brushes and other brushes should be provided and maintained in good condition.

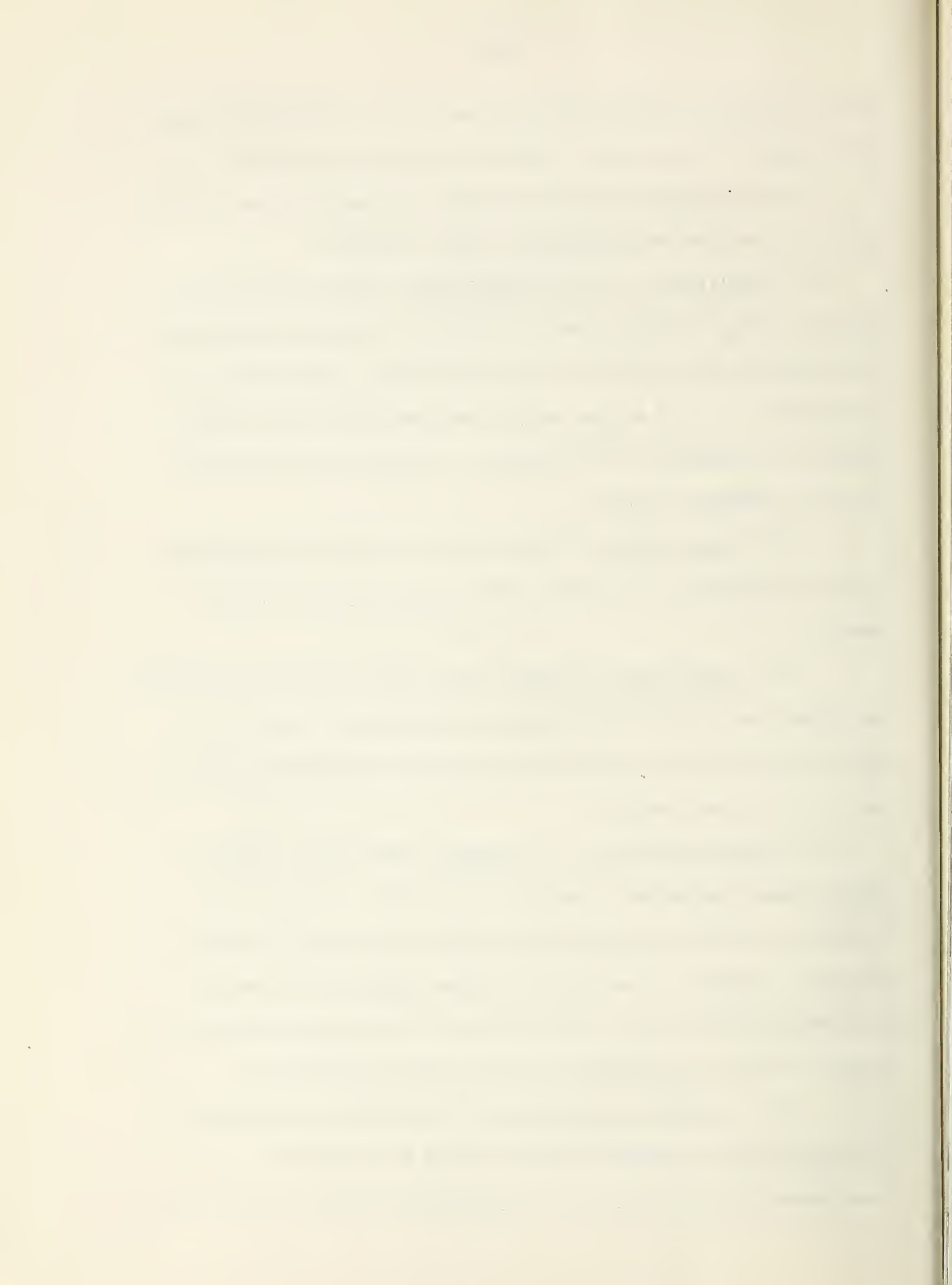
(3) Facilities (a) Hot and cold water.--There should be an adequate supply of potable water available. Heating devices should be provided so that the water can be heated to a temperature of at least 150° F. If oil or gas heaters are used they should be well vented to the outside of the building. The water should be piped into the milkhouse or room.

(b) Hand washing.--There should be provided hand washing facilities composed of at least a wash basin, soap and sanitary towels.

(c) Liquid waste disposal.--Waste water from washing should be drained sufficient distance away from milkhouse or room as to prevent contamination of the water supply and accumulation of waste water on the ground surface.

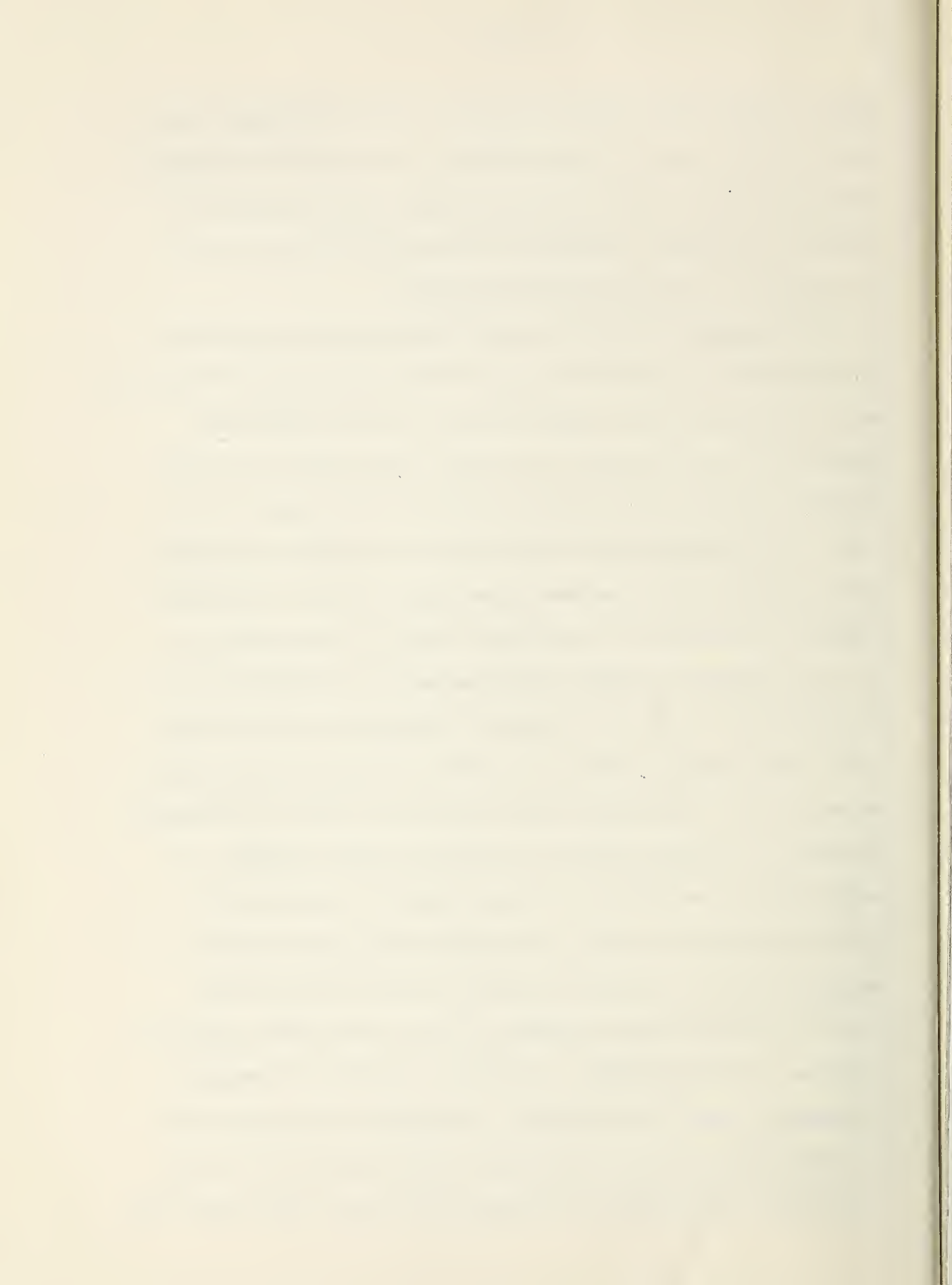
(4) Sanitary practices (a) General.--The windows, shelves, tables, racks and cabinets should be kept clean. The milkhouse should be kept free from trash and articles not used in the milk room work. Approved insecticides or other effective fly-control measures should be used to control flies. Care should be taken to protect the milk and milkhouse equipment from contamination.

(b) Cleaning and sanitizing.--All utensils and equipment which have come in contact with milk should be rinsed with warm (approximately 110-115° F.) water immediately after use. They should



then be placed in the washing compartment of the 2-compartment wash tank containing a good cleaning solution, and all parts and surfaces thoroughly brushed. The parts should then be rinsed thoroughly in the second compartment containing clean hot water and then placed on the table or rack for draining and drying.

Milking machines should be rinsed while the power is still on by dipping the teat cups into a pail of warm (approximately 110-115° F.) water, drawing the water through the cups into the milking pail. Immerse the cups up and down in the water several times to provide turbulence during rinsing. After swirling the rinse water in the milker pail and emptying the rinse water, the procedure is repeated using clean hot water containing a good dairy cleanser or detergent-sanitizer. Following this the machine should be disassembled and all parts brushed and washed in the same manner as other utensils. The machine may be placed on a special storage rack and the rubber parts filled completely with a 0.5 percent (1 tablespoon per gallon) solution of lye. The rubber parts should not be stored in a chlorine solution as it tends to harden the rubber and cause checking. As rubber tends to absorb fat, it is good practice to maintain two sets of inflations and hoses and alternate weekly with each set, keeping one set in a strong lye solution for the full seven-day period. This will help to lengthen the life of the rubber parts and keep them clean and pliable. A 5 percent solution is recommended (2 pounds, 3 ounces per 5 gallons). If synthetic rubber parts are used the strength of the solution may be only about half as strong. Plastic materials should not be stored in the lye as they become hard





and brittle. When rubber parts are stored for one week in a lye solution, the fat absorbed by the rubber and the lye form a soap-like film on the surface which can be easily brushed off when taken out of the solution. The solution can be reused for one month or more without replacing, if kept up to strength. When using a lye solution certain precautions must always be taken; use a suitable container, properly covered and protected from children.

Farm bulk tanks may be cleaned by several different procedures. The following method is successful: After the milk has been removed and the tank rinsed with water, remove the agitator and outlet valve. Brush all surfaces including those parts removed, using a good dairy cleanser, then rinse thoroughly, reassemble and close the covers.

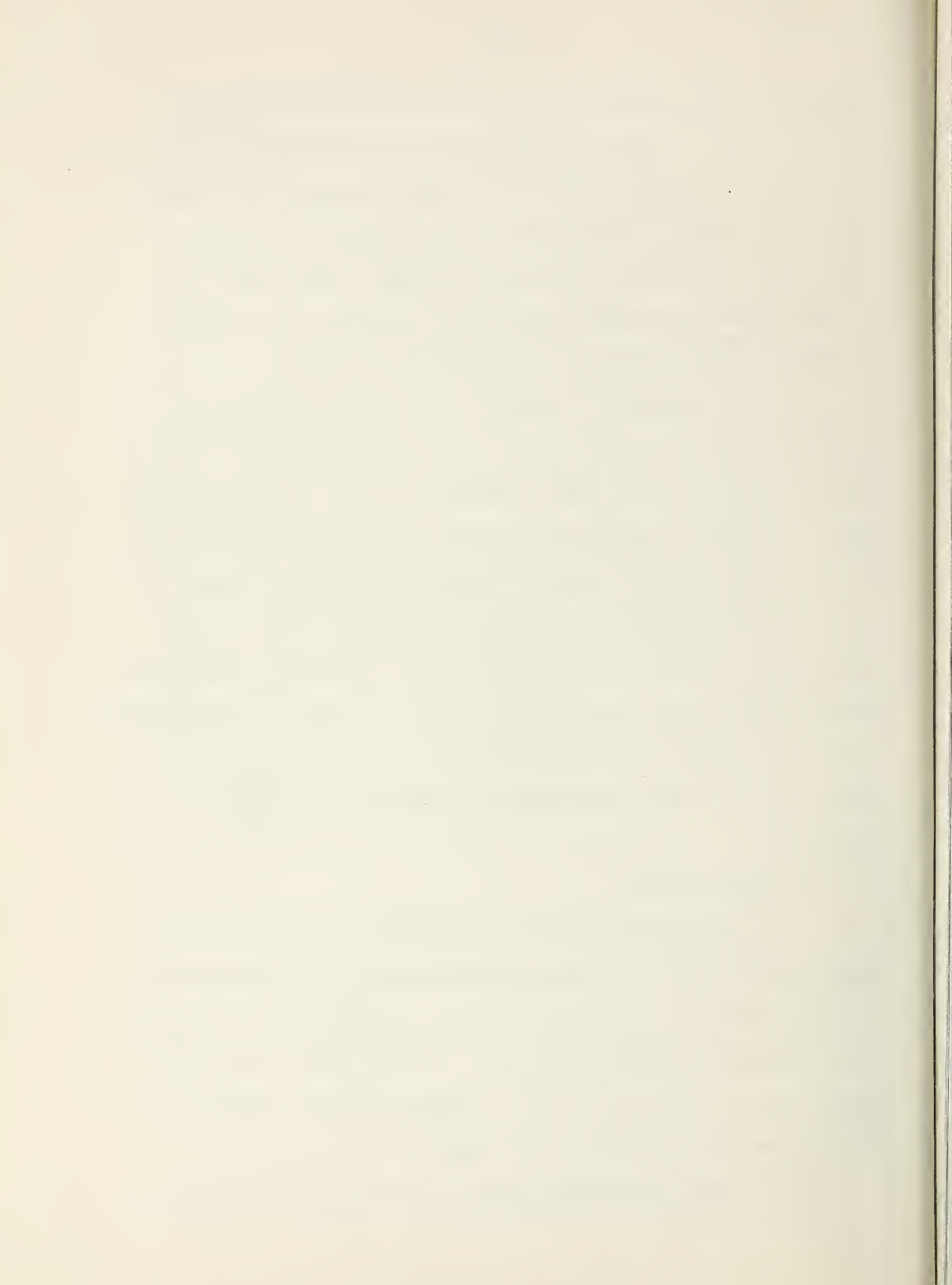
(c) Bactericidal treatment.--Immediately before use, the milk contact surfaces of all utensils, parts and equipment should be given a bactericidal treatment consisting of an effective concentration of chlorine (100 ppm for rinse or 500 ppm for fog spray) or by any other approved method giving equivalent results for bacterial destruction.

#### E. Farm Facilities

(1) Water Supply.--Water for all dairy purposes should be from a supply properly located, protected and operated and should be easily accessible, adequate, and of a safe, sanitary quality, approved by the responsible regulatory agency. It may be from a public water supply, private spring, or a well. Precaution should be taken at all times to avoid contamination of the supply.

(2) Toilet and sewage disposal.--Every dairy farm should be





provided with one or more toilets properly constructed and maintained in good condition. If a flush toilet is provided it should be properly connected to a septic tank, properly located and constructed, or to a sanitary sewer. A pit privy, when provided, should be of tight construction, properly covered, protected from flies and equipped with a self-closing door. The privy should be properly located with respect to distance from water supply.

F. Transportation and protection of raw milk in transit.

Hauling of milk.--Vehicles used for the transportation of milk should be of the enclosed type, constructed and operated to protect the product from extreme temperatures, dust or other adverse conditions, and should be kept clean. Cans used for transportation of milk should not be used for transportation of skim milk, buttermilk or whey to producers.

Milk transportation tanks, sanitary piping, fittings and pumps, should be cleaned and sanitized at least once each day and more frequently if necessary. If the tank is not to be used immediately for the pick up of another load of milk it should be washed promptly, and given bactericidal treatment immediately before using. The outside of the tank truck should be maintained in a clean condition. New and replacement tank trucks should meet the 3-A Sanitary Standards for Milk Transportation Tanks.





